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# Main structural elements of Makran (Sea of Oman) region based on seismic data and required Tsunami Early Warning System

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The Gulf of Oman is remnant of Late Cretaceous/ Early Palaeocene oceanic crust. To the north the area is bounded by the Makran coast, the onshore part of the Makran Accretionary Complex. The south-eastern boundary is defined by the Murray Ridge, rising from the ocean floor almost to the surface. To the south and west the area is bounded by the narrow and steep continental margin of Oman. Onshore the Makran Accretionary Complex is bounded to the east and west by large transform faults: the Zendan-Minab Fault Complex in the west and the Ornach Nal Fault Complex to the east.

The character of convergence along the Arabian-Iranian plate boundary changes radically eastward from the Zagros ranges to the Makran region. This appears to be due to collision of continental crust on the west in contrast to subduction of oceanic crust on the east. The Makran ranges display progressively older and more highly deformed sedimentary units northward from the coast, together with an increase in elevation of the ranges. North of the Makran ranges are large subsiding basins, flanked to the north by active volcanoes. Published geologic data, satellite images, and 2D seismic offshore reflection data indicate that the Makran is a large sedimentary prism accreted during the Cenozoic. Almost all the characteristics of Accretionary prisms observed in well-studied arcs can be identified or inferred in the Makran, which, however, is unique in its degree of exposure.

Historically southern Iran and the region around it (Makran) have been affected by tsunami. The most recent earthquake of magnitude 8.1 occurred in 1945 creating a huge tsunami in this region. The coastal area of Iran along the Sea of Oman in the

vicinity of the Indian Ocean has developed extensively during the last two decades and the high growth of population has increased the risk of death loss due to any future tsunami. Therefore a Tsunami monitoring system is a need for this region. The monitoring system should at least be consisted of a network of three strong-motion accelerographs (onshore), three broadband seismographs (onshore), two deep-ocean buoy-based sensors, and a number of sea level gauge stations. This system should be connected to existing international communication system.

In this presentation the major structural elements of the Makran Accretionary Complex based on recently acquired offshore 2D seismic reflection data and seismological information will be discussed and in addition capabilities of Iran in terms of seismology and future related required activity will be highlighted.